Alan Bao

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EDUCATION

University of California, Berkeley **May 2026**

Bachelor of Science, Electrical Engineering and Computer Sciences; Bachelor of Science, Engineering Mathematics and Statistics

- **Relevant Coursework:** Data Structures, Algorithms, Computer Architecture, Computer Security, Databases, Machine Learning, Computer Vision, Linear Modelling, Probability & Random Processes, Optimization, Numerical Analysis

EXPERIENCE

UC Berkeley Electrical Engineering and Computer Sciences **January 2023 – Present**

Tutor *Berkeley, CA*

- Lectured 40-student classes on introductory computer science theory such as data structures, algorithms and graphs
- Increased student success and productivity on class projects by hosting conceptual whiteboarding sessions and debugging code during lab sections and office hours
- Tutored 5 to 10 students in weekly private sessions for advanced computer science topics including efficient algorithms, machine learning and computer architecture

Capital One **June 2025 – August 2025**

Software Engineer Intern *Plano, TX*

- Expedited auto loan approval process by 23% by deploying an accessible graph-based auto-loan decisioning service
- Enabled reactive graph editing in the UI by building a secure REST API endpoint that processes rule files, logs graph and versioning metadata and persists them to S3 and Postgres
- Reduced graph build time by 66% and rebuild time by 14% by designing an optimized AWS Postgres (RDS) schema for necessary graph data and implementing lightweight incremental rebuilds
- Decreased data retrieval time from 8 to 3 seconds by integrating an in-memory cache to eliminate redundant queries
- Shrank Javascript bundle size by 37% by migrating the UI from Angular to Lit

Hologic **May 2024 – August 2024**

Software Engineer Intern *San Diego, CA*

- Boosted analytics throughput 70% by architecting the News Aggregation Program (NAP), an automated text mining and classification pipeline that processes 2000+ medical articles per week
- Improved UX and halved article search time to 4 seconds by redesigning NAP's UI and optimizing database queries
- Halved manual research time and surfaced key research priorities by applying topic modeling to 5 years of industry data
- Designed a low latency, department-wide email digest system, automatically sending 100+ targeted summaries biweekly

Rapid Reviews Infectious Diseases **February 2023 – December 2024**

Data Science Intern *Berkeley, CA*

- Increased preprint review efficiency by 41% by developing an NLP classifier that auto-assigns submissions to reviewers by research focus
- Delivered weekly trend briefs to 20 reviewers by mining and analysis 500+ papers for trending research topics
- Streamlined the review processes by manually matching 40-80 reviewers to preprints per week

TECHNICAL SKILLS

- **Programming Languages:** Python, Java, Golang, C, Javascript, SQL
- **Libraries & Frameworks:** React, REST API, Spring Boot, JUnit, Pytorch, Angular, Lit
- **Platform & Tools:** Git, AWS, Linux, Docker, CI/CD

PROJECTS

UC Berkeley Assist Tool | *Python, React, Javascript, Selenium, HTML, CSS*

- Collected over 6000 course articulations in under 14 minutes by automating data collection through web scraping
- Implemented a React web application that helps students instantly research transferable courses from all 116 California Community Colleges to UC Berkeley

Image Editor | *Python, React, OpenCV, Scikit-Learn, Scipy, HTML, CSS*

- Built a Python image editing tool that uses computer vision techniques to sharpen, align, crop, blend and morph images
- Derived and tailored image processing algorithms and Gaussian and Laplacian pyramids for more visually accurate results
- Currently developing a frontend in React to allow easy usage of tool without needing to directly access the source code